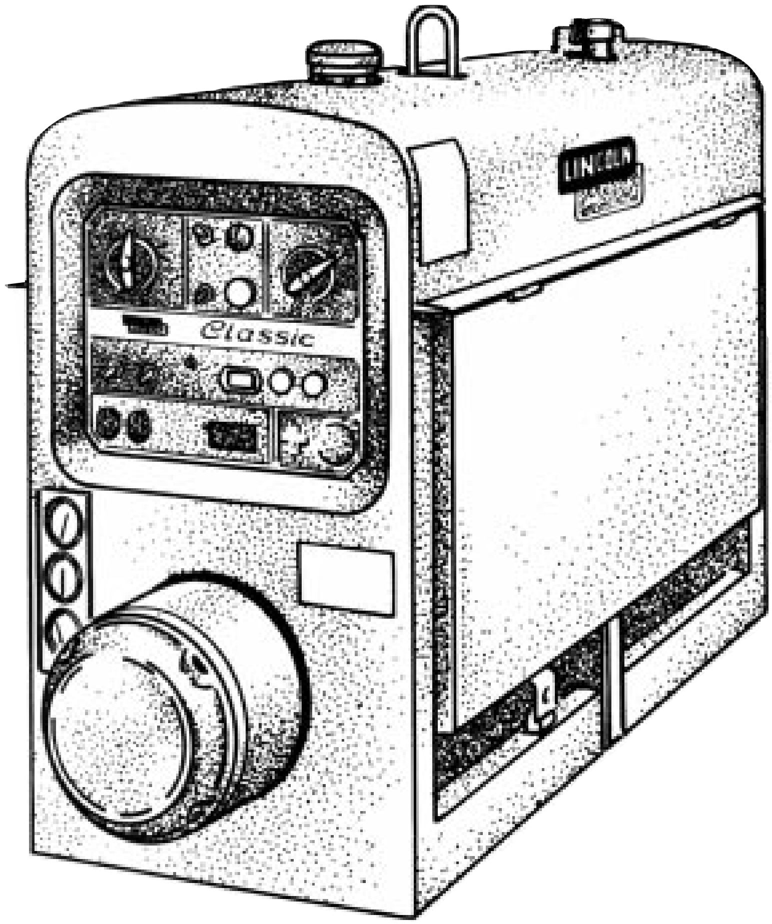
RETURN TO MAIN MENU

CLASSIC® III & CLASSIC® III D

IM529-A

October, 1999

For Machines with Code Numbers 10033, 10061, 10072 or 10156
Supersedes IM482



Safety Depends on You

Lincoln arc welding equipment is designed and built with safety in mind. However, your overall safety can be increased by proper installation ... and thoughtful operation on your part. DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT. And, most importantly, think before you act and be careful.

This manual covers equipment which is obsolete and no longer in production by The Lincoln Electric Co. Specifications and availability of optional features may have changed.

OPERATOR'S MANUAL

LINCOLN® ELECTRIC
• World's Leader in Welding and Cutting Products •
• Sales and Service through Subsidiaries and Distributors Worldwide •
Cleveland, Ohio 44117-1199 U.S.A. TEL: 216.481.8100 FAX: 216.486.1751 WEB SITE: www.lincolnelectric.com

WARNING

CALIFORNIA PROPOSITION 65 WARNINGS

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

The Above For Diesel Engines

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

The Above For Gasoline Engines

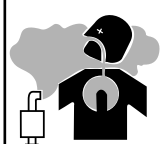
ARC WELDING CAN BE HAZARDOUS. PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS SHOULD CONSULT WITH THEIR DOCTOR BEFORE OPERATING.

Read and understand the following safety highlights. For additional safety information, it is strongly recommended that you purchase a copy of “Safety in Welding & Cutting - ANSI Standard Z49.1” from the American Welding Society, P.O. Box 351040, Miami, Florida 33135 or CSA Standard W117.2-1974. A Free copy of “Arc Welding Safety” booklet E205 is available from the Lincoln Electric Company, 22801 St. Clair Avenue, Cleveland, Ohio 44117-1199.

BE SURE THAT ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR PROCEDURES ARE PERFORMED ONLY BY QUALIFIED INDIVIDUALS.

FOR ENGINE powered equipment.

1.a. Turn the engine off before troubleshooting and maintenance work unless the maintenance work requires it to be running.



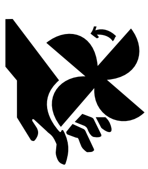
1.b. Operate engines in open, well-ventilated areas or vent the engine exhaust fumes outdoors.



1.c. Do not add the fuel near an open flame welding arc or when the engine is running. Stop the engine and allow it to cool before refueling to prevent spilled fuel from vaporizing on contact with hot engine parts and igniting. Do not spill fuel when filling tank. If fuel is spilled, wipe it up and do not start engine until fumes have been eliminated.

1.d. Keep all equipment safety guards, covers and devices in position and in good repair.Keep hands, hair, clothing and tools away from V-belts, gears, fans and all other moving parts when starting, operating or repairing equipment.

1.e. In some cases it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

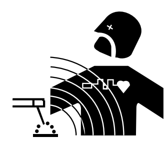


1.f. Do not put your hands near the engine fan. Do not attempt to override the governor or idler by pushing on the throttle control rods while the engine is running.

1.g. To prevent accidentally starting gasoline engines while turning the engine or welding generator during maintenance work, disconnect the spark plug wires, distributor cap or magneto wire as appropriate.



1.h. To avoid scalding, do not remove the radiator pressure cap when the engine is hot.



ELECTRIC AND MAGNETIC FIELDS may be dangerous

2.a. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding current creates EMF fields around welding cables and welding machines

2.b. EMF fields may interfere with some pacemakers, and welders having a pacemaker should consult their physician before welding.

2.c. Exposure to EMF fields in welding may have other health effects which are now not known.

2.d. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

2.d.1. Route the electrode and work cables together - Secure them with tape when possible.

2.d.2. Never coil the electrode lead around your body.

2.d.3. Do not place your body between the electrode and work cables. If the electrode cable is on your right side, the work cable should also be on your right side.

2.d.4. Connect the work cable to the workpiece as close as possible to the area being welded.

2.d.5. Do not work next to welding power source.

Mar ‘95



ELECTRIC SHOCK can kill.

3.a. The electrode and work (or ground) circuits are electrically “hot” when the welder is on. Do not touch these “hot” parts with your bare skin or wet clothing. Wear dry, hole-free gloves to insulate hands.

3.b. Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground.

In addition to the normal safety precautions, if welding must be performed under electrically hazardous conditions (in damp locations or while wearing wet clothing; on metal structures such as floors, gratings or scaffolds; when in cramped positions such as sitting, kneeling or lying, if there is a high risk of unavoidable or accidental contact with the workpiece or ground) use the following equipment:

- **Semiautomatic DC Constant Voltage (Wire) Welder.**
- **DC Manual (Stick) Welder.**
- **AC Welder with Reduced Voltage Control.**

3.c. In semiautomatic or automatic wire welding, the electrode, electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically “hot”.

3.d. Always be sure the work cable makes a good electrical connection with the metal being welded. The connection should be as close as possible to the area being welded.

3.e. Ground the work or metal to be welded to a good electrical (earth) ground.

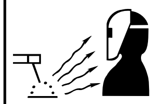
3.f. Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.

3.g. Never dip the electrode in water for cooling.

3.h. Never simultaneously touch electrically “hot” parts of electrode holders connected to two welders because voltage between the two can be the total of the open circuit voltage of both welders.

3.i. When working above floor level, use a safety belt to protect yourself from a fall should you get a shock.

3.j. Also see Items 6.c. and 8.

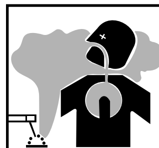


ARC RAYS can burn.

4.a. Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to ANSI Z87. I standards.

4.b. Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.

4.c. Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.



FUMES AND GASES can be dangerous.

5.a. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases.When welding, keep your head out of the fume. Use enough ventilation and/or exhaust at the arc to keep fumes and gases away from the breathing zone. **When welding with electrodes which require special ventilation such as stainless or hard facing (see instructions on container or MSDS) or on lead or cadmium plated steel and other metals or coatings which produce highly toxic fumes, keep exposure as low as possible and below Threshold Limit Values (TLV) using local exhaust or mechanical ventilation. In confined spaces or in some circumstances, outdoors, a respirator may be required. Additional precautions are also required when welding on galvanized steel.**

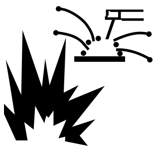
5.b. Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations. The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.

5.c. Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation, especially in confined areas, to insure breathing air is safe.

5.d. Read and understand the manufacturer’s instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer’s safety practices. MSDS forms are available from your welding distributor or from the manufacturer.

5.e. Also see item 1.b.

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WELDING SPARKS can cause fire or explosion.

6.a. Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.

6.b. Where compressed gases are to be used at the job site, special precautions should be used to prevent hazardous situations. Refer to “Safety in Welding and Cutting” (ANSI Standard Z49.1) and the operating information for the equipment being used.

6.c. When not welding, make certain no part of the electrode circuit is touching the work or ground. Accidental contact can cause overheating and create a fire hazard.

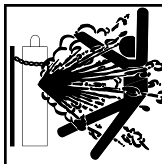
6.d. Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been “cleaned”. For information, purchase “Recommended Safe Practices for the Preparation for Welding and Cutting of Containers and Piping That Have Held Hazardous Substances”, AWS F4.1 from the American Welding Society (see address above).

6.e. Vent hollow castings or containers before heating, cutting or welding. They may explode.

6.f. Sparks and spatter are thrown from the welding arc. Wear oil free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair. Wear ear plugs when welding out of position or in confined places. Always wear safety glasses with side shields when in a welding area.

6.g. Connect the work cable to the work as close to the welding area as practical. Work cables connected to the building framework or other locations away from the welding area increase the possibility of the welding current passing through lifting chains, crane cables or other alternate circuits. This can create fire hazards or overheat lifting chains or cables until they fail.

6.h. Also see item 1.c.



CYLINDER may explode if damaged.

7.a. Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. All hoses, fittings, etc. should be suitable for the application and maintained in good condition.

7.b. Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.

7.c. Cylinders should be located:
- Away from areas where they may be struck or subjected to physical damage.
- A safe distance from arc welding or cutting operations and any other source of heat, sparks, or flame.

7.d. Never allow the electrode, electrode holder or any other electrically “hot” parts to touch a cylinder.

7.e. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

7.f. Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

7.g. Read and follow the instructions on compressed gas cylinders, associated equipment, and CGA publication P-l, “Precautions for Safe Handling of Compressed Gases in Cylinders,” available from the Compressed Gas Association 1235 Jefferson Davis Highway, Arlington, VA 22202.



FOR ELECTRICALLY powered equipment.

8.a. Turn off input power using the disconnect switch at the fuse box before working on the equipment.

8.b. Install equipment in accordance with the U.S. National Electrical Code, all local codes and the manufacturer’s recommendations.

8.c. Ground the equipment in accordance with the U.S. National Electrical Code and the manufacturer’s recommendations.

Mar ‘95

PRÉCAUTIONS DE SÛRETÉ

Pour votre propre protection lire et observer toutes les instructions et les précautions de sûreté specifiques qui parraissent dans ce manuel aussi bien que les précautions de sûreté générales suivantes:

Sûreté Pour Soudage A L'Arc

1. Protegez-vous contre la secousse électrique:

   a. Les circuits à l'électrode et à la piéce sont sous tension quand la machine à souder est en marche. Eviter toujours tout contact entre les parties sous tension et la peau nue ou les vétements mouillés. Porter des gants secs et sans trous pour isoler les mains.
   b. Faire trés attention de bien s'isoler de la masse quand on soude dans des endroits humides, ou sur un plancher metallique ou des grilles metalliques, principalement dans les positions assis ou couché pour lesquelles une grande partie du corps peut être en contact avec la masse.
   c. Maintenir le porte-électrode, la pince de masse, le câble de soudage et la machine à souder en bon et sûr état defonctionnement.
   d.Ne jamais plonger le porte-électrode dans l'eau pour le refroidir.
   e. Ne jamais toucher simultanément les parties sous tension des porte-électrodes connectés à deux machines à souder parce que la tension entre les deux pinces peut être le total de la tension à vide des deux machines.
   f. Si on utilise la machine à souder comme une source de courant pour soudage semi-automatique, ces precautions pour le porte-électrode s'applicuent aussi au pistolet de soudage.

2. Dans le cas de travail au dessus du niveau du sol, se protéger contre les chutes dans le cas ou on recoit un choc. Ne jamais enrouler le câble-électrode autour de n'importe quelle partie du corps.

3. Un coup d'arc peut être plus sévère qu'un coup de soliel, donc:

   a. Utiliser un bon masque avec un verre filtrant approprié ainsi qu'un verre blanc afin de se protéger les yeux du rayonnement de l'arc et des projections quand on soude ou quand on regarde l'arc.
   b. Porter des vêtements convenables afin de protéger la peau de soudeur et des aides contre le rayonnement de l'arc.
   c. Protéger l'autre personnel travaillant à proximité au soudage à l'aide d'écrans appropriés et non-inflammables.

4. Des gouttes de laitier en fusion sont émises de l'arc de soudage. Se protéger avec des vêtements de protection libres de l'huile, tels que les gants en cuir, chemise épaisse, pantalons sans revers, et chaussures montantes.

5. Toujours porter des lunettes de sécurité dans la zone de soudage. Utiliser des lunettes avec écrans lateraux dans les zones où l'on pique le laitier.

6. Eloigner les matériaux inflammables ou les recouvrir afin de prévenir tout risque d'incendie dû aux étincelles.

7. Quand on ne soude pas, poser la pince à une endroit isolé de la masse. Un court-circuit accidental peut provoquer un échauffement et un risque d'incendie.

8. S'assurer que la masse est connectée le plus prés possible de la zone de travail qu'il est pratique de le faire. Si on place la masse sur la charpente de la construction ou d'autres endroits éloignés de la zone de travail, on augmente le risque de voir passer le courant de soudage par les chaines de levage, câbles de grue, ou autres circuits. Cela peut provoquer des risques d'incendie ou d'echauffement des chaines et des câbles jusqu'à ce qu'ils se rompent.

9. Assurer une ventilation suffisante dans la zone de soudage. Ceci est particuliérement important pour le soudage de tôles galvanisées plombées, ou cadmiées ou tout autre métal qui produit des fumeés toxiques.

10. Ne pas souder en présence de vapeurs de chlore provenant d'opérations de dégraissage, nettoyage ou pistolage. La chaleur ou les rayons de l'arc peuvent réagir avec les vapeurs du solvant pour produire du phosgéne (gas fortement toxique) ou autres produits irritants.

11. Pour obtenir de plus amples renseignements sur la sûreté, voir le code "Code for safety in welding and cutting" CSA Standard W 117.2-1974.

PRÉCAUTIONS DE SÛRETÉ POUR LES MACHINES À SOUDER À TRANSFORMATEUR ET À REDRESSEUR

1. Relier à la terre le chassis du poste conformement au code de l'électricité et aux recommendations du fabricant. Le dispositif de montage ou la piece à souder doit être branché à une bonne mise à la terre.

2. Autant que possible, l'installation et l'entretien du poste seront effectués par un électricien qualifié.

3. Avant de faires des travaux à l'interieur de poste, la debrancher à l'interrupteur à la boite de fusibles.

4. Garder tous les couvercles et dispositifs de sûreté à leur place.

Mar. '93

Thank You —— for selecting a **QUALITY** product by Lincoln Electric. We want you to take pride in operating this Lincoln Electric Company product ••• as much pride as we have in bringing this product to you!

Please Examine Carton and Equipment For Damage Immediately

When this equipment is shipped, title passes to the purchaser upon receipt by the carrier. Consequently, Claims for material damaged in shipment must be made by the purchaser against the transportation company at the time the shipment is received.

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Model Name & Number ______________________________

Code & Serial Number ______________________________

Date of Purchase ______________________________

Whenever you request replacement parts for or information on this equipment always supply the information you have recorded above.

Read this Operators Manual completely before attempting to use this equipment. Save this manual and keep it handy for quick reference. Pay particular attention to the safety instructions we have provided for your protection. The level of seriousness to be applied to each is explained below:

⚠ WARNING

This statement appears where the information **must** be followed **exactly** to avoid **serious personal injury** or **loss of life**.

⚠ CAUTION

This statement appears where the information **must** be followed to avoid **minor personal injury** or **damage to this equipment**.

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS – CLASSIC III AND IIID

Machine

Product Name	Ordering Information	Description	Rated DC Output * Amps / Volts / Duty Cycle	DC Current Range (Fine Adjustment in Each Range)	Auxiliary Power	Dimensions & Weight
Classic III	K1428-2 CSA@ w/o Wire Feed Module	300 Amp DC Arc Welder All Copper Windings Pure DC Power Generator	225A / 29V / 100% 300A / 32V / 50% 350A / 34V / 30%	40 - 350 Amps	3000 Watts, 60 Hz. AC	40.94 x 24.0 x 66.25in (1040 x 610 x 1683 mm) 1406 lbs (638 kg)
	K1428-3 CSA@ w/ Wire Feed Module			220 - Max 160 - 240 120 - 190 80 - 130 Min - 90	26 Amps @ 115V 13 Amps @ 230V	
Classic III D	K1433-1 CSA@ w/o Wire Feed Module			40 - 350 Amps	3000 Watts, 60 Hz. AC	40.94 x 24.0 x 66.25 in (1040 x 610 x 1683mm) 1445 lbs (657 kg)
	K1433-2 CSA@ w/ Wire Feed Module			220 - Max 160 - 240 120 - 190 80 - 130 Min - 90	26 Amps @ 115V 13 Amps @ 230V	

@ Meets Canadian Standards * Based on a 10 min. period.

Engine

Product Name	Description	Horsepower	Operating Speeds	Displacement	Ignition	Capacities
Classic III	4 Cylinder 4 Cycle Water-Cooled **Gasoline** Engine Cast Iron Cylinder, Block/Crankcase	45 HP @ 1700 RPM	Full Load: 1725 RPM High Idle: 1800 RPM Low Idle: 1350 RPM	164.7 Cu In (2.7 ltrs)	Distributor Type Electronic	**Fuel:** 15 Gals (57 Ltrs) **Lubricating Oil:** 7.0 Qts (6.7 Ltrs) **Coolant:** 9.3 Qts (8.8 Ltrs)
Classic III D	4 Cylinder 4 Cycle Water-Cooled **Diesel** Engine Cast Iron Cylinder, Block/Crankcase	38.9 HP @ 1700 RPM			Diesel	

GENERAL DESCRIPTION

The Classic® III and Classic® III D are heavy duty, engine driven, DC arc welding power sources capable of providing constant current output for stick welding or DC TIG welding. These welders are wound with all copper coils, rated at 300 amps/32 Volts, and provide other Classic features such as improved door latches and stainless hinges. With the addition of the optional K623-1 Wire Feed Module™, the Classic III or Classic III D will provide constant voltage output for running the LN-7, LN-23P, or LN-25 wire feeders. (The Wire Feed Module is factory installed on the K1428-3 and K1433-2).

The Classic III D has Diesel Engine Protection. In the event of sudden low oil pressure or high coolant temperature, the engine immediately shuts down. The Classic III & Classic III D have a current range of 40-350 DC amps with output ratings as follows:

RATED OUTPUT	DUTY CYCLE
225A @ 29V	100%
300A @ 32V	50%
350A @ 34V	30%

These units are also capable of providing 3 kVA of 115/230 volts of 60 cycle AC auxiliary power.

The Classic III unit uses the Continental **TM27®** industrial water-cooled **Gasoline** engine, while the Classic III D uses the Continental **TMD27®** industrial water-cooled **Diesel** engine.

DESIGN FEATURES

Control Panel

Both the engine and the welder controls are located on one recessed panel at the exciter end of the machine. The welder controls consist of a five step "Current Range Selector" switch and a "Fine Current Adjustment" rheostat. Each welder is equipped with a "Start" button, an "Ignition" switch and an "Idler" control switch. The diesel version comes with a "Glow Plug" feature for easier cold weather starting.

The control panels also contain an engine temperature gauge (diesel only), a battery charging ammeter, an oil pressure gauge (oil pressure light on the gasoline version), two three prong grounding type receptacles and circuit breakers for auxiliary power, and a choke control (gasoline version only).

All Copper Windings - For long life and dependable operation.

Engine Idler - Both the Classic III & III D are equipped with an electronic automatic engine idler. It automatically increases and decreases engine speed **when starting and stopping welding or using auxiliary power**. A built-in time delay permits changing electrodes before the engine slows to its low idle speed. The "Idler" control switch on the panel locks the idler in full speed position when desired.

Auxiliary Power - 3.0 kVA of nominal 115/230V, 60Hz, AC. Output voltage is maintained within ± 10% at all loads up to rated capacity. (See Optional Features for Power Plug Kits.)

Welder Enclosure - The complete welders are rubber mounted on a rugged steel "C" channel base.

The output terminals are placed at the side of the machines so that they are protected by the door. The output terminals are labeled (+) and (-).

Cranking System - A 12 volt electric starter is standard.

Air Cleaner - Heavy duty two stage dry type.

Muffler - A muffler and rain cap are standard.

Engine Hour Meter - A meter to record hours of operation.

Diesel Engine Protection - The system shuts the diesel engine down in the event of sudden low oil pressure or high coolant temperature.

Carburetor Deicing Kit

Classic III Welders are equipped with a kit, that prevents carburetor icing when outside temperature is 60°F/15.5°C or lower.

PRE-OPERATION INSTALLATION

⚠ WARNING

Do not attempt to use this equipment until you have thoroughly read the engine manufacturer's manual supplied with your welder. It includes important safety precautions, detailed engine starting, operating and maintenance instructions, and parts lists.



ELECTRIC SHOCK can kill.
- **Do not touch electrically live parts or electrode with skin or wet clothing.**
- **Insulate yourself from work and ground**
- **Always wear dry insulating gloves.**



ENGINE EXHAUST can kill.
- **Use in open, well ventilated areas or vent exhaust outside.**



MOVING PARTS can injure.
- **Do not operate with doors open or guards off.**
- **Stop engine before servicing.**
- **Keep away from moving parts.**

See additional warning information at the front of this operator's manual.

Exhaust Spark Arrester

Some federal, state or local laws may require that engines be equipped with exhaust spark arresters when they are operated in certain locations where unarrested sparks may present a fire hazard. The standard mufflers included with these welders do not qualify as spark arresters. When required by local regulations, suitable spark arresters must be installed and properly maintained.

⚠ CAUTION

Use of an incorrect arrester may lead to engine damage or performance loss. Contact the engine manufacturer for specific recommendations.

Location / Ventilation

Always operate the welder with the doors closed. Leaving the doors open changes the designed air flow and may cause overheating.

The welder should be located to provide an unrestricted flow of clean, cool air. Also, locate the welder so that engine exhaust fumes are properly vented to an outside area.

STACKING

Classic III and III D machines cannot be stacked.

ANGLE OF OPERATION

To achieve optimum engine performance the Classic III and III D should be run in a level position. The maximum angle of operation for the TM27 and TMD27 engines is 60 degrees in a direction to cause the air intake manifold to be angled up, 45 degrees for the air intake manifold to be angled down, and 50 degrees for the welder control panel to be angled up or down. If the engine is to be operated at an angle, provisions must be made for checking and maintaining the oil level at the normal (FULL) oil capacity in the crankcase. When operating the welder at an angle, the effective fuel capacity will be less than the specified 15 gallons (57 Ltrs.).

Machine Grounding

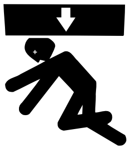
According to the United States National Electrical Code, the frame of this portable generator is not required to be grounded and is permitted to serve as the grounding means for cord connected equipment plugged into its receptacle.

Some state, local, or other codes or unusual operating circumstances may require the machine frame to be grounded. It is recommended that you determine the extent to which such requirements may apply to your particular situation and follow them explicitly. A machine grounding stud marked with the symbol ⏚ is provided on the welding generator frame foot. (If an older portable welder does not have a grounding stud, connect the ground wire to an unpainted frame screw or bolt.) In general, if the machine is to be grounded, it should be connected with a #8 or larger copper wire to a solid earth ground such as a metal water pipe going into the ground for at least ten feet and having no insulated joints, or to the metal framework of a building which has been effectively grounded. The U.S. National Code lists a number of alternate means of grounding electrical equipment.

Lift Bail

A lift bail is provided for lifting with a hoist.

⚠ WARNING



FALLING EQUIPMENT can cause injury.

- Do not lift this machine using lift bale if it is equipped with a heavy accessory such as a trailer or gas cylinder.
- Lift only with equipment of adequate lifting capacity.
- Be sure machine is stable when lifting.

Trailer (See Optional Features)

If the user adapts a non-Lincoln trailer, he must assume responsibility that the method of attachment and usage does not result in a safety hazard nor damage the welding equipment. Some of the factors to be considered are as follows:

1. Design capacity of trailer vs. weight of Lincoln equipment and likely additional attachments.

2. Proper support of, and attachment to, the base of the welding equipment so there will be no undue stress to the framework.
3. Proper placement of the equipment on the trailer to ensure stability side to side and front to back when being moved and when standing by itself while being operated or serviced.

4. Typical conditions of use, i.e., travel speed, roughness of surface on which the trailer will be operated; environmental conditions, likely maintenance.

5. Conformance with federal, state and local laws. (1)

(1) Consult applicable federal, state and local laws regarding specific requirements for use on public highways.

Polarity Control and Cable Sizes

With the engine off, route the electrode and work cables through the strain relief bracket on the base and connect to the studs located below the fuel tank mounting rail. (See size recommendations below.) For **positive** polarity, connect the electrode cable to the terminal marked **"+"**. For **Negative** polarity, connect the electrode cable to the **"-"** stud. These connections should be checked periodically and tightened if necessary.

When welding at a considerable distance from the welder, be sure you use ample size welding cables.

RECOMMENDED COPPER CABLE SIZES

		Cables Sizes for Combined Length of Electrode Plus Work Cable	
Amps	**Duty Cycle**	**Up to 200 ft.**	**200 to 250 ft.**
225	100%	1	1/0
300	50%	1/0	2/0
350	30%	2/0	3/0

PRE-OPERATION SERVICE

⚠ CAUTION

READ the engine operating and maintenance instructions supplied with this machine.

⚠ WARNING



Fuel can cause fire or explosion.

- Stop engine while fueling.
- Do not smoke when fueling.
- Do not overfill tank.
- Keep sparks and flame away from tank.
- Wipe up spilled fuel and allow fumes to clear before starting engine.

Oil

This unit is supplied from the factory with the engine crankcase filled with a high quality SAE 10W/30 oil. This oil should be acceptable for most typical ambient temperatures. Consult the engine operation manual for specific engine manufacturer's recommendations. Upon receipt of the welder, check the engine dipstick to be sure the oil is at the "full" mark. DO NOT overfill.

Fuel

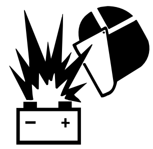
Fill the fuel tank with the grade of fuel recommended in the Engine Operator's manual. Make sure fuel valve on the sediment bowl is in the open position.

Cooling System

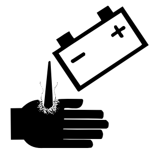
The radiator has been filled at the factory with a 50-50 mixture of ethylene glycol antifreeze and water. Check the radiator level and add a 50-50 solution as needed (see engine manual or antifreeze container for alternate antifreeze recommendations).

Battery Charging

⚠ WARNING



GASES FROM BATTERY can explode.
- Keep sparks, flame and cigarettes away.



BATTERY ACID can burn eyes and skin.
- Wear gloves and eye protection and be careful when boosting, charging or working near battery.

To prevent EXPLOSION when:

a) Installing a new battery - disconnect the negative cable from the old battery first and connect the negative cable to the new battery last.
b) Connecting a battery charger - remove the battery from the welder by disconnecting the negative cable first, then the positive cable and battery clamp. When reinstalling, connect the negative cable last.
c) Using a booster - connect the positive lead to the battery first, then connect the negative lead to the ground lead on the base.

To prevent ELECTRICAL DAMAGE when:

a) Installing a new battery.
b) Using a booster.

Use correct polarity - **Negative Ground**.

To prevent BATTERY DISCHARGE, if you have an ignition switch, turn it off when engine is not running.

- To prevent BATTERY BUCKLING, tighten nuts on battery clamp until snug.

The Classic III & Classic III D are each equipped with a wet charged battery. The charging current is automatically regulated when the battery is low (after starting the engine) to a trickle current when the battery is fully charged.

When replacing, jumping or otherwise connecting the battery to the battery cables, the proper polarity must be observed. This system is **NEGATIVE GROUND**.

ENGINE OPERATION

⚠ WARNING

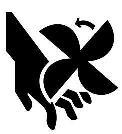
Do not attempt to use this equipment until you have thoroughly read the engine manufacturer's manual supplied with your welder. It includes important safety precautions, detailed engine starting, operating and maintenance instructions, and parts lists.



ELECTRIC SHOCK can kill.
• Do not touch electrically live parts or electrode with skin or wet clothing.
• Insulate yourself from work and ground
• Always wear dry insulating gloves.



ENGINE EXHAUST can kill.
• Use in open, well ventilated areas or vent exhaust outside.



MOVING PARTS can injure.
• Do not operate with doors open or guards off.
• Stop engine before servicing.
• Keep away from moving parts.

See additional warning information at the front of this operator's manual.

Operate the welder with the doors closed. Leaving the doors open changes the designed air flow and can cause overheating.

Starting the Classic III Continental TM27 Gasoline Engine

1. Turn the Idler control switch to "High".
2. Turn the Ignition control switch to "On".
3. Pull out the choke control.
4. Press the Start button.
5. If the engine fails to start in 60 seconds, wait 30 seconds before repeating the above procedure.
6. Allow engine to run at high idle speed for several minutes to warm the engine. Cold engines tend to run at a speed too slow to supply the voltage required for proper idler operation.
7. As engine warms, slowly return the choke control to the in (off) position.

Starting the Classic III D Continental TMD27 Diesel Engine

1. Turn the Idler control switch to "High".
2. Turn the Ignition control switch to "On".
3. Push the reset button.
4. Press the Glow Plug button for 10 to 20 seconds.
5. Press the Start button. Release both buttons when engine starts.
6. If engine fails to start in 60 seconds, the reset button will pop out. Wait 30 seconds, reset and repeat the above procedure.
7. Allow engine to run at high idle speed for several minutes to warm the engine. Cold engines tend to run at a speed too slow to supply the voltage required for proper idler operation.

Note: Extreme cold weather starting may require longer glow plug operation.

⚠ WARNING

Under NO conditions should ether or other starting fluids be used in conjunction with the glow plugs. This may cause an explosion or fire!

Stopping the Engine

1. Turn the Ignition control switch "Off"

At the end of each day's welding, refill the fuel tank to minimize moisture condensation in the tank. Also, running out of fuel tends to draw dirt into the fuel system.

When hauling the welder between job sites, close the fuel feed valve beneath the fuel tank. In gasoline engines, failure to turn fuel off when traveling can cause carburetor flooding and difficult starting at the new job site.

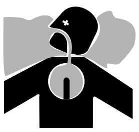
In diesel engines, if the fuel supply is cut off or runs out while the fuel pump is operating, air may be entrapped in the fuel distribution system. If this happens, bleeding of the fuel system may be necessary. See the Engine Operating Manual.

WELDER OPERATION

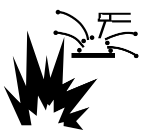
⚠ WARNING



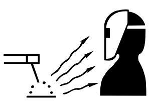
ELECTRIC SHOCK can kill.
- **Do not touch electrically live parts or electrode with skin or wet clothing.**
- **Insulate yourself from work and ground.**



FUMES & GASES can be dangerous.
- **Keep your head out of the fumes.**
- **Use ventilation or exhaust to remove fumes from breathing zone.**



WELDING SPARKS can cause fire or explosion.
- **Keep flammable material away.**



ARC RAYS can burn.
- **Wear eye, ear, and body protection.**

Duty Cycle

The NEMA output rating of the Classic III & Classic III D are each 300 amperes at 32 arc volts on a 50% duty cycle (consult Specifications in this manual for alternate ratings). Duty cycle is based on a ten minute period; thus, the welder can be loaded at rated output for five minutes out of every ten minute period.

Control of Welding Current

⚠ CAUTION

DO NOT TURN THE "CURRENT RANGE SELECTOR" WHILE WELDING because the current may arc between the contacts and damage the switch.

The "Current Range Selector" provides five overlapping current ranges. The "Fine Current Adjustment" adjusts the current from minimum to maximum within each range. Open circuit voltage is also controlled by the "Fine Current Adjustment" permitting control of the arc characteristics.

A high open circuit voltage setting provides the soft "buttering" arc with best resistance to pop-outs preferred for most welding. To get this characteristic, set the "Current Range Selector" to the lowest setting that still provides the current you need and set the "Fine Current Adjustment" near maximum. For example: to obtain 175 amps and a soft arc, set the "Current Range Selector" to the 190-120 position and then adjust the "Fine Current Adjustment" for 175 amps.

When a forceful "digging" arc is required, usually for vertical and overhead welding, use a higher "Current Range Selector" setting and lower open circuit voltage. For example: to obtain 175 amps and a forceful arc, set the "Current Range Selector" to the 240-160 position and the "Fine Current Adjustment" setting to get 175 amps.

Some arc instability may be experienced with EXX10 electrodes when trying to operate with long arc techniques at settings at the lower end of the open circuit voltage range.

⚠ CAUTION

DO NOT attempt to set the "Current Range Selector" between the five points designated on the nameplate.

These switches have a spring loaded cam which almost eliminates the possibility of setting this switch between the designated points.

Idler Operation

Start the engine with the "Idler" switch in the "High" position. Allow it to run at high idle speed for several minutes to warm the engine. See Specifications for operating speeds.

The idler is controlled by the "Idler" toggle switch on the welder control panel. The switch has two positions as follows:

1. In the "High" position, the idler is off, and the engine high speed is controlled by the governor.

2. In the "Auto" / position, the idler operates as follows:

- **a.** When welding or drawing power for lights or tools (approximately 100-150 watts minimum) from the receptacles, the engine operates at full speed.
- **b.** When welding ceases or the power load is turned off, a preset time delay of about 15 seconds starts. This time delay cannot be adjusted.
- **c.** If the welding or power load is not re-started before the end of the time delay, the idler reduces the engine to low idle speed.

Auxiliary Power

The AC auxiliary power, supplied as a standard, has a rating of 3.0 kVA of 115/230 VAC (60 hertz).

With the 3.0 kVA, 115/230 VAC auxiliary power, one 115V duplex and one 230V grounding type receptacle are provided. The circuit is protected with circuit breakers.

The rating of 3.0 kVA permits a maximum continuous current of 13 amps to be drawn from the 230 volt duplex receptacle. Or a total of 26 amps can be drawn from the 115 volt duplex receptacle. The 115 volt duplex receptacle has a configuration which permits 15 amps to be drawn from either half. The total combined load of all receptacles is not to exceed 3.0 kVA.

An optional power plug kit is available. When this kit is specified, the customer is supplied with a plug for each receptacle.

Carburetor Deicing Kit

A carburetor deicing kit is installed on Classic III welders leaving the factory. The purpose of the Carburetor Deicing Kit is to prevent carburetor icing when the outside temperature is 60°F/15.5°c or lower. See Carburetor Deicing Kit Usage Instructions For Seasonal Change Over on page B4.

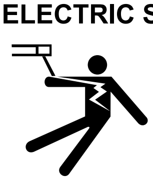
To obtain **REPLACEMENT PARTS** for the Carburetor Deicing Kit contact WIS-CON TOTAL POWER CORPORATION.

Wis-Con Part#	Description
10221023	Complete Carburetor Deicing Kit
10220028	Angled Heat Collector Shield
10060025	2"x18" Flexible Hose (Gates 28095)
X02355 #36	1.56"-2.50" Gear Clamp
XM32067	M10X70 Bolt
XM37004	3/8" Flat Washer
10250021	Notice Decal
LIT10278	Installation Instructions

CARBURETOR DEICING KIT USAGE INSTRUCTIONS FOR SEASONAL CHANGE OVER

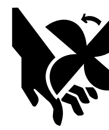
⚠ WARNING

ELECTRIC SHOCK can kill.



- **Do not operate with panels open.**
- **Disconnect NEGATIVE(-) BATTERY LEAD before servicing.**
- **Do not touch electrically live parts.**

MOVING PARTS can injure.



- **Keep guards in place.**
- **Keep away from moving parts.**
- **Only qualified personnel should install, use or service this equipment.**

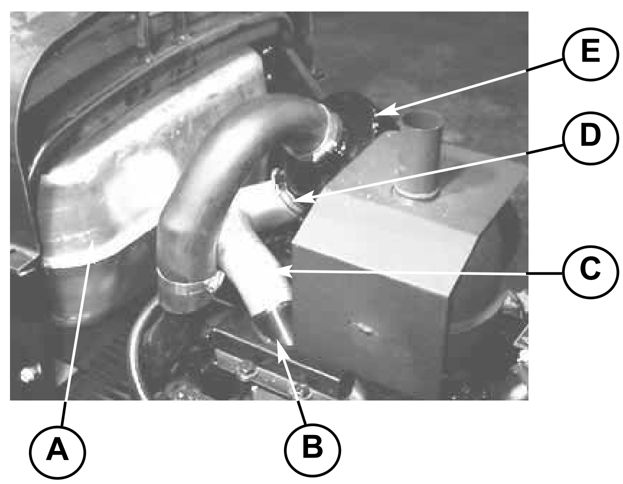
The engine <u>MUST</u> <u>BE</u> <u>COLD</u> before seasonal change over of the carburetor deicing kit.

When the AVERAGE AIR INTAKE TEMPERATURE (Average Ambient) is:

Below 60°F / 15.5°C (Winter Season Configuration)

1. With the engine OFF, remove the negative cable from the battery.
2. Push the FLEXIBLE HOSE fully onto the HEAT COLLECTOR SHIELD outlet tube, see Figure 1.
3. Reconnect negative battery cable.

FIGURE 1



A. FUEL TANK
B. HEAT COLLECTOR SHIELD
C. FLEXIBLE HOSE
D. GEAR CLAMP
E. AIR FILTER

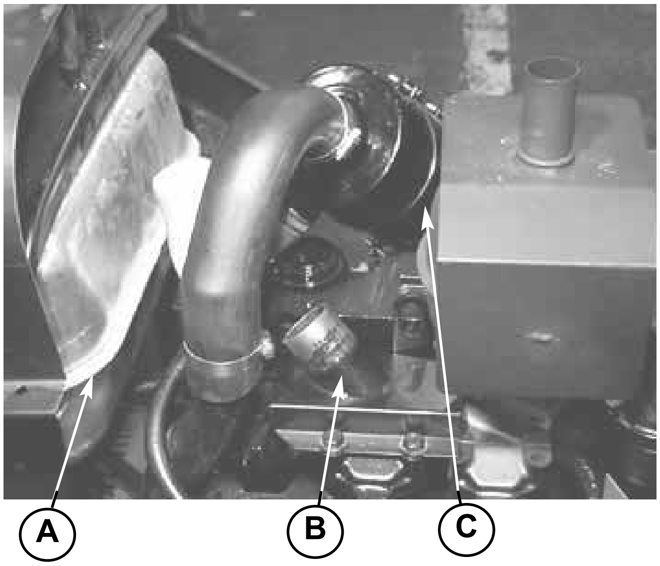
Above 60°F / 15.5°C (Summer Season Configuration)

1. With the engine OFF, remove the negative cable from the battery.
2. Remove the FLEXIBLE HOSE from the HEAT COLLECTOR SHIELD outlet tube.
3. The **FLEXIBLE HOSE** is to be positioned per figure 2.

IMPORTANT: 1/2” clearance between the **FLEXIBLE HOSE** and the fuel tank edge is required. Also 2” clearance between **FLEXIBLE HOSE** and roof.

4. Reconnect negative battery cable.

FIGURE 2



A. FLEXIBLE HOSE
B. HEAT COLLECTOR SHIELD
C. AIR FILTER

NOTE: On welders received directly from the factory, the “Deicing” kit is configured for “summer Seasons”

OPTIONAL FEATURES (Field Installed)

Accessory Set (K703) - Includes electrode and work cables, headshield, work clamp and electrode holder.

Hi-Freq™ (K799) - Provides high frequency plus gas valve for DC TIG welding.

Linc-Thaw™ (L2964-1) - Includes meter and fuses to protect welder when thawing frozen water pipes.

⚠ WARNING

Pipe Thawing IS NOT a CSA approved procedure. If not done properly, it can result in fire, explosion, damage to wiring which may make it unsafe, damage to pipes, burning up the welder, or other hazards.

Do not use a welder to thaw pipe before reviewing Lincoln Bulletin E695.1 (dated October 1987 or later.)

Power Plug Kit (K802C) - A power plug kit for the auxiliary power receptacles is available. (Provides a plug for each receptacle.)

Remote Control Kit (K924-4) - Contains switch, receptacle, remote control rheostat, and 100 ft (30.5m) cable for adjusting the OCV at the welding site.

Trailer (K768) - Two-wheeled trailer for in-plant and yard towing at speeds under 10 mph only.

Trailer (K780) - Two-wheeled trailer with brakes, lights and fenders. (For highway use, consult applicable federal, state and local laws regarding possible additional requirements.)

Trailer - Two-wheeled trailer with steel, torsion-bar axle, 54” (137cm) wheel track. Low sway, low center-of-gravity. Sturdy tread plate platform. Choice of 3 hitches. Add on fender & light package. For highway use, consult applicable federal, state, and local laws regarding possible additional requirements. **Order: K913-1 Trailer, K913-2 Ball Hitch, K913-3 Lunette Eye Hitch, K913-4 Clevis Pin Hitch, K913-5 Fender & Light Kit.**

Wire Feed Module (K623-1) - Provides constant voltage (CV) output with improved arc stability for Innershield welding. Excellent for MIG welding. Recommended wire feeders are the LN-7, LN-23P and LN-25. (Factory installed on the K1428-3 and K1433-2).

MAINTENANCE

⚠ WARNING

Have qualified personnel do the maintenance work. Turn the engine off before working inside the machine. In some cases, it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

Do not put your hands near the engine cooling blower fan. If a problem cannot be corrected by following the instructions, take the machine to the nearest Lincoln Field Service Shop.

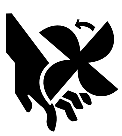
ELECTRIC SHOCK can kill.



- **Do not touch electrically live parts or electrode with skin or wet clothing.**
- **Insulate yourself from work and ground**
- **Always wear dry insulating gloves.**



ENGINE EXHAUST can kill.
- **Use in open, well ventilated areas or vent exhaust outside.**



MOVING PARTS can injure.
- **Do not operate with doors open or guards off.**
- **Stop engine before servicing.**
- **Keep away from moving parts.**

See additional warning information at front of this operator's manual.

General Instructions

1. Blow out the welder and controls with an air hose at least once every two months. In particularly dirty locations, this cleaning may be necessary once a week. Use low pressure air to avoid driving dirt into the insulation.

2. "Current Range Selector" contacts should not be greased. To keep the contacts clean, rotate the current control through its entire range frequently. Good practice is to turn the handle from maximum to minimum setting twice each morning before starting to weld.

3. Put a drop of oil on the "Current Range Selector" shaft at least once every month.

4. When necessary, remove the sediment bowl, if so equipped, from beneath the fuel tank and clean out any accumulated dirt and water.

5. Follow the engine service schedule in this manual and the detailed maintenance and troubleshooting in the engine manufacturer's manual.

Cooling System

The Classic III & III D are each equipped with a pressure radiator. Keep the radiator cap tight to prevent loss of coolant. Clean and flush the cooling system periodically to prevent clogging the passage and overheating the engine. When antifreeze is needed, always use the permanent type. Capacity = 9.3 qts.

Bearings

This welder is equipped with a double-shielded ball bearing having sufficient grease to last indefinitely under normal service. Where the welder is used constantly or in excessively dirty locations, it may be necessary to add one half ounce of grease per year. A pad of grease one inch wide, one inch long, and one inch high weighs approximately one half ounce. Overgreasing is far worse than insufficient greasing.

When greasing the bearings, keep all dirt out of the area. Wipe the fittings completely clean and use clean equipment. More bearing failures are caused by dirt introduced during greasing than from insufficient grease.

Commutator and Brushes

⚠ WARNING

Uncovered rotating equipment can be dangerous. Use care so your hands, hair, clothing or tools do not catch in the rotating parts. Protect yourself from particles that may be thrown out by the rotating armature when stoning the commutator.

Shifting of the commutator brushes may result in:
- Change in machine output
- Commutator damage
- Excessive brush wear

Periodically inspect the commutator, slip rings, and brushes by removing the covers. DO NOT remove or replace these covers while the machine is running. Commutators and slip rings require little attention. However, if they are black or appear uneven, have them cleaned by an experienced maintenance man using fine sandpaper or a commutator stone. Never use emery cloth or paper for this purpose. **NOTE:** If the welder is used in dirty or dusty locations, or if the welder is not used for prolonged periods of time, it may be necessary to clean the commutator and slip rings more often.

Replace brushes when they wear within 1/4” of the pigtail. A complete set of replacement brushes should be kept on hand. Lincoln brushes have a curved face to fit the commutator. Have an experienced maintenance man seat these brushes by lightly stoning the commutator as the armature rotates at full speed until contact is made across the full face of the brushes. After stoning, blow out the dust with low pressure air.

To seat slip ring brushes, position the brushes in place. Then slide one end of a piece of fine sandpaper between slip rings and brushes with the coarse side against the brushes. With slight additional finger pressure on top of the brushes, pull the sandpaper around the circumference of the rings - in direction of rotation only - until brushes seat properly. In addition, stone slip ring with a fine stone. Brushes must be seated 100%.

Arcing or excessive exciter brush wear indicates a possible misaligned shaft. Have an authorized Field Service Shop check and realign the shaft.

Idler Maintenance

⚠ CAUTION

Before doing electrical work on the idler printed circuit board, disconnect the battery.

When installing a new battery or using a jumper battery to start the engine, be sure the battery polarity is connected properly. The correct polarity is **negative** ground. Damage to the engine alternator and the printed circuit board can result from incorrect connection.

1. The solenoid plunger must work freely and not bind. Dust the plunger about once a year with graphite powder.

2. Proper operation of the idler requires good grounding of the printed circuit board, reed switch, and battery.

3. If desired, the welder can be used without automatic idling by setting the “Idler” switch to the “High” position.

Nameplates

Whenever routine maintenance is performed on this machine - or at least yearly - inspect all nameplates and labels for legibility. Replace those which are no longer clear. Refer to the parts list for the replacement item number.

ENGINE SERVICE

Hours Between Servicing				Maintenance Item	Type or Capacity
Daily	50	250	500		
I				Engine Oil (1)	
	R			Engine Oil (1)	7 qts (Including Filter)
	R			Oil Filter	Fram #PH-8A Purolator #PER-1A
I				Air Cleaner	
	C			Air Cleaner	
		R		Air Cleaner Cartridge	Donaldson #P181050 Nelson #70206N
	C			PCV System	
	I			Fan Belt Tension	
		C		Throttle or Governor Linkage	
		C or R		Spark Plugs (Gap=.032”) (4)	Champion #RN12YC
I				Cooling System	
			C	Cooling System	9.3 qts
			R	Fuel Filter (4)	Lincoln #S17753 (2)
			R	Fuel Filter (5)	Continental #TMD27F00506
			R	Fuel Filter (6)	Continental #TMD20F00400
	(3)		I	Valve Clearance	Intake=0.14”; Exhaust=.018”
			I	Battery	BCI Group 24

I = Inspect C = Clean R = Replace

NOTES:
(1) Consult Engine Operators Manual for oil recommendations.
(2) Or equivalent.
(3) First inspection after 50 hours; every 500 thereafter.
(4) Gasoline engine only.
(5) Diesel engine only. (Welder Code Numbers 10061 and below)
(6) Diesel engine only. (Welder Code Numbers above 10061)
(7) Consult Engine Operators Manual for additional maintenance schedule information.

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TROUBLESHOOTING

⚠ WARNING

Have qualified personnel do the troubleshooting work. Turn the engine off before working inside the machine. In some cases, it may be necessary to remove safety guards to perform required maintenance. Remove guards only when necessary and replace them when the maintenance requiring their removal is complete. Always use the greatest care when working near moving parts.

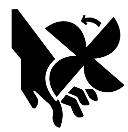
Do not put your hands near the engine cooling blower fan. If a problem cannot be corrected by following the instructions, take the machine to the nearest Lincoln Field Service Shop.



ELECTRIC SHOCK can kill.
- **Do not touch electrically live parts or electrode with skin or wet clothing.**
- **Insulate yourself from work and ground**
- **Always wear dry insulating gloves.**



ENGINE EXHAUST can kill.
- **Use in open, well ventilated areas or vent exhaust outside.**



MOVING PARTS can injure.
- **Do not operate with doors open or guards off.**
- **Stop engine before servicing.**
- **Keep away from moving parts.**

See additional warning information at the front of this operator's manual

⚠ CAUTION

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.

WELDER TROUBLESHOOTING

TROUBLE	CAUSES	WHAT TO DO
1. Machine fails to hold the heat consistently.	a. Rough or dirty commutator.	a. Commutator should be turned or cleaned.
	b. Brushes may be worn down to limit.	b. Replace brushes.
	c. Field circuit may have variable resistance connection or intermittent open circuit due to loose connection or broken wire.	c. Check field current with ammeter to discover varying current. This applies to both the main generator and exciter.
	d. Electrode lead or work lead connection may be poor.	d. Tighten all connections.
	e. Wrong grade of brushes may have been installed on generator.	e. Use Lincoln brushes.
	f. Field rheostat may be making poor contact and overheating.	f. Inspect and clean the rheostat.
2. Welder starts but fails to generate current.	a. Generator or exciter brushes may be loose or missing.	a. Be sure that all brushes bear on the commutator and have proper spring tension.
	b. Exciter may not be operating.	b. Check exciter output voltage with voltmeter or lamp.
	c. Field circuit of generator or exciter may be open.	c. Check for open circuits in rheostat, field leads, and field coils. Check rectifier bridge.
	d. Exciter may have lost excitation.	d. Flash fields. (1) Check flashing diode at 5 o'clock brushholder in generator.
	e. Series field and armature circuit may be open-circuited.	e. Check circuit with ringer or voltmeter.

(1) FLASHING THE FIELDS:

1. Stop the engine welder and remove the cover from the exciter.
2. Turn the "Fine Adjustment Control" (rheostat) to "100" on the dial.
3. Using a 12 volt automotive battery, connect it's negative terminal to the negative brushholder. The negative brushholder is the one nearest to the rotor lamination. See the wiring diagram. With the engine NOT running, touch the positive battery terminal to the positive brushholder. Remove the battery from the circuit.
4. Replace the exciter cover. Start the welder and the generator voltage should build up.

3. Welding arc is loud and spatters excessively	a. Current setting may be too high.	a. Check setting and current output with ammeter.
	b. Polarity may be wrong.	b. Check polarity. Try reversing polarity or try an electrode of the opposite polarity.
4. Welding current too great or too small compared to indication on the dial.	a. Exciter output low causing low output compared to dial indication.	a. Check exciter field circuit.
	b. Operating speed too low or too high.	b. Adjust speed screw on governor for 1800 rpm operating speed.
5. Arc continuously pops out.	a. "Current Range Selector" switch may be set at an intermediate position.	a. Set the switch at the center of the current range desired.

ELECTRONIC IDLER TROUBLESHOOTING GUIDE

Engine Will Not Return to Idle in Approximately 15 Seconds

↓

Set Idler Control Switch to the Auto Position

↓

Check Continuity of Idler Control Switch

Continuity Good

1. Reed Switch in Weld Circuit May be Closed.
2. Check Continuity of Idler Solenoid Coil (8.5 - 9.0 ohms) & Leads.
3. Check Ground Connections in Idle Circuit.
4. Replace P.C. Board.

Open

Replace Switch

Engine Will Not Pick Up Speed When:

The Arc is Struck

Reed Switch in Weld Circuit **Defective -- Will Not Close**

To Check: Short the Red Lead on P.C. Board to Welder Frame.

↓

Engine Picks Up Speed

1. Check for Break in Red Lead and Repair
2. Replace Reed Switch in Weld Circuit.

Engine Does Not Pick Up Speed

Replace P.C. Board

The Auxiliary Power is Loaded

Power Load Too Small **Try Load Above 150 Watts**

Engine Does Not Pick Up Speed Check Connections and Continuity of Current Transformer.

↓

Replace P.C. Board

⚠ CAUTION

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.

ENGINE TROUBLESHOOTING - (TM27 Gasoline Engine Only)

TROUBLE	CAUSES	WHAT TO DO
1. Engine fails to start	a. Out of fuel. b. Clogged fuel system. c. Choke not closing tightly. d. Ignition switch shorted or open. e. Moisture or carbon on spark plugs. f. Defective distributor.	a. Fill with gasoline. b. Check all lines to the carburetor. c. Loosen choke cable screw and slack off choke wire. d. Replace. e. Remove plugs, clean and adjust gap. (See Engine Service Chart) f. Replace.
2. Low oil pressure. Light not lit when engine is running.	a. Oil too light. b. Oil too low. c. Defective oil pressure switch or light.	a. Drain; refill with proper grade. b. Fill to "Full" mark on bayonet gage. Do not overfill. c. Replace.
3. Lack of power.	a. Carbon deposits causing pre-ignition. b. Incorrect timing.	a. Run engine under full load for a short time. b. Time ignition. **
4. Overheating.	a. No water in radiator or clogged cooling system. b. Late timing. c. Improper valve clearance. d. Fan belt too loose.	a. Check throughout for dirty or broken hoses, clogged radiator, or defective water pump. b. Time ignition. ** c. Adjust valve tappets. (See Engine Service Chart for settings). d. Adjust for 3/4" to 1" deflection.
5. Knocking.	a. Poor grade of gasoline. b. Spark advanced too far.	a. Use at least 87 octane gasoline. b. Retime ignition. **
6. Surging.	a. Governor and carburetor toggles and butterfly valve shaft lever are dirty and sticking. b. Dirty air filter. c. Governor spring adjusting screw misadjusted. d. Governor control rod wrong length.	a. Clean and lubricate. Replace toggles if worn. b. Remove and clean according to instructions on unit. c. Adjust screw enough to eliminate surge. ** d. Adjust length of control rod so that there is from 1/32" to 1/16" clearance between the stop pin and the stop when the engine is shut off and the regulator expanded. **

** See engine manual.

CAUTION

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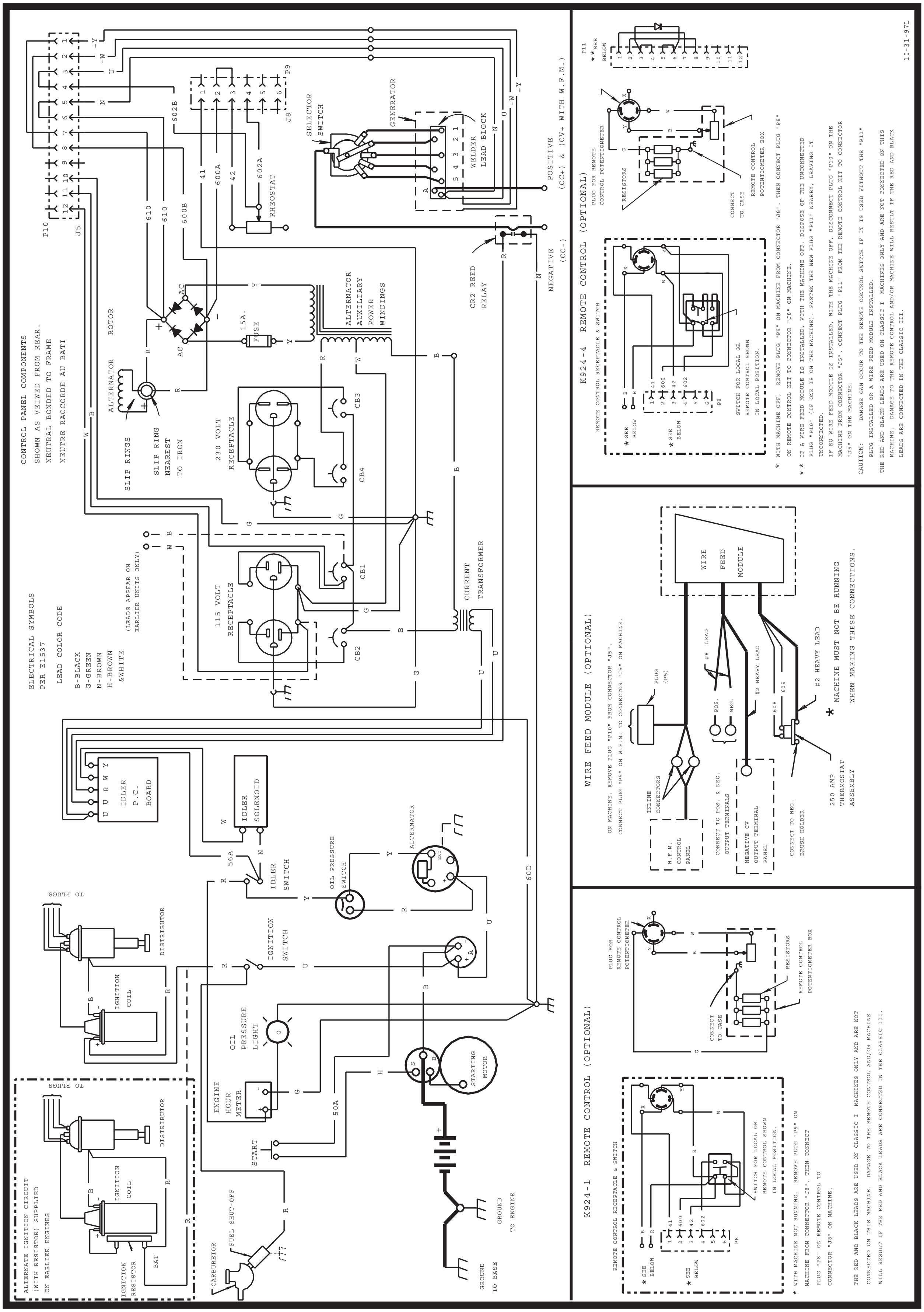
ENGINE TROUBLESHOOTING - (TM27 Gasoline Engine Only)

TROUBLE	CAUSES	WHAT TO DO
7. Large decrease in speed.	a. Misadjusted governor spring adjusting screw.	a. Adjust screw until speed does not drop more than 100 rpm ± 25 rpm when arc is struck. If surge occurs, eliminate it with the control rod. If high idle speed changes, readjust the high idle speed screw. **
8. Unable to strike an arc.	a. Idle speed screw is misadjusted.	a. Idle speed is set too low so idler fails to operate when arc is struck. Adjust low idle speed screw for 1350 ± 25 rpm.
9. Engine runs irregularly.	a. Carburetor set too lean. b. Carburetor Deicing Kit in wrong configuration.	a. Adjust carburetor adjusting screw so engine will run smoothly at idle speed. ** b. Carburetor Deicing Kit per instructions on page B3 and B4.
10. Engine fails to pick up speed when arc is struck.		a. Check the idler.

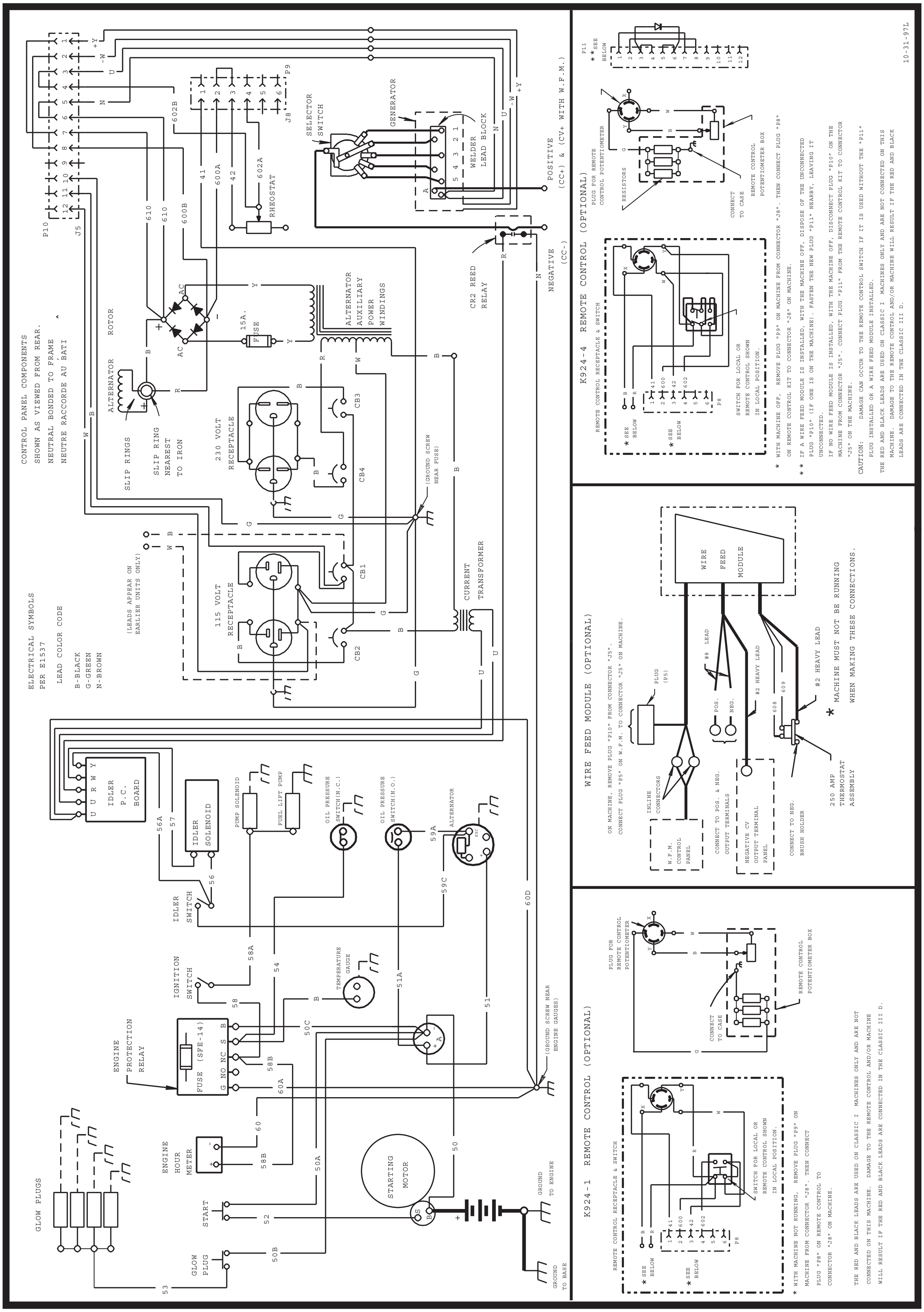
** See engine manual.

⚠ CAUTION

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, contact your **Local Lincoln Authorized Field Service Facility** for technical troubleshooting assistance before you proceed.



NOTE: This diagram is for reference only. It may not be accurate for all machines covered by this manual. The specific diagram for a particular code is pasted inside the machine on one of the enclosure panels. If the diagram is illegible, write to the Service Department for a replacement. Give the equipment code number..



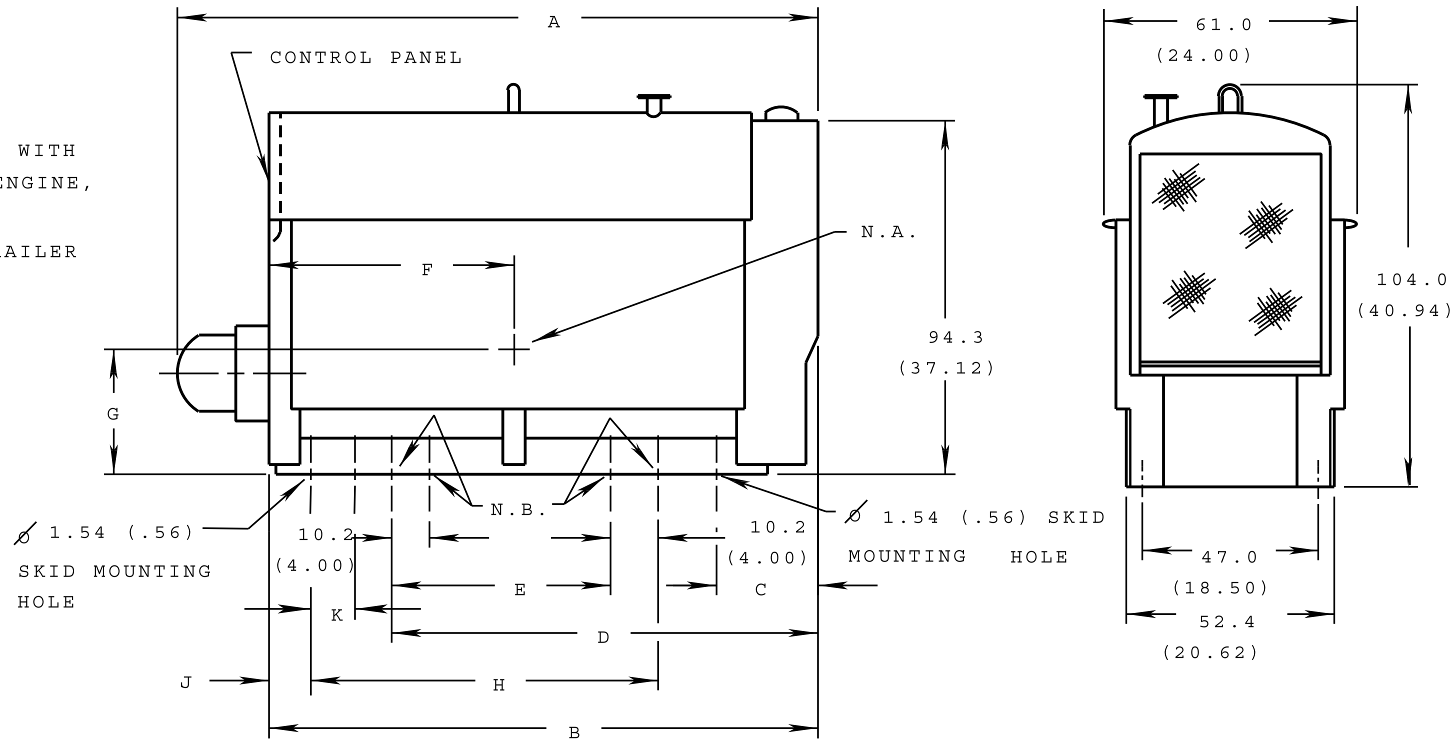
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DIMENSION PRINT

NOTES:

N.A. CENTER OF GRAVITY WITH OIL AND WATER IN ENGINE, BUT NO FUEL.

N.B. ∅ 1.54 (.56) TRAILER MOUNTING HOLES.



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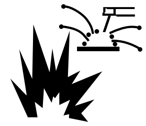
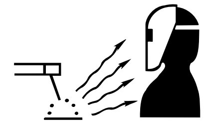
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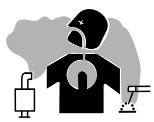
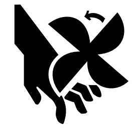
			
WARNING	● Do not touch electrically live parts or electrode with skin or wet clothing. ● Insulate yourself from work and ground.	● Keep flammable materials away.	● Wear eye, ear and body protection.
Spanish **AVISO DE PRECAUCION**	● No toque las partes o los electrodos bajo carga con la piel o ropa mojada. ● Aislese del trabajo y de la tierra.	● Mantenga el material combustible fuera del área de trabajo.	● Protéjase los ojos, los oídos y el cuerpo.
French **ATTENTION**	● Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension. ● Isolez-vous du travail et de la terre.	● Gardez à l'écart de tout matériel inflammable.	● Protégez vos yeux, vos oreilles et votre corps.
German **WARNUNG**	● Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung! ● Isolieren Sie sich von den Elektroden und dem Erdboden!	● Entfernen Sie brennbarres Material!	● Tragen Sie Augen-, Ohren- und Körperschutz!
Portuguese **ATENÇÃO**	● Não toque partes elétricas e electrodos com a pele ou roupa molhada. ● Isole-se da peça e terra.	● Mantenha inflamáveis bem guardados.	● Use proteção para a vista, ouvido e corpo.
Japanese **注意事項**	● 通電中の電気部品、又は溶材にヒフやぬれた布で触れないこと。 ● 施工物やアースから身体が絶縁されている様にして下さい。	● 燃えやすいものの側での溶接作業は絶対にしてはなりません。	● 目、耳及び身体に保護具をして下さい。
Chinese **警 告**	● 皮肤或濕衣物切勿接觸帶電部件及銲條。 ● 使你自己與地面和工件絕緣。	● 把一切易燃物品移離工作場所。	● 佩戴眼、耳及身體勞動保護用具。
Korean **위 험**	● 전도체나 용접봉을 젖은 헝겁 또는 피부로 절대 접촉치 마십시요. ● 모재와 접지를 접촉치 마십시요.	● 인화성 물질을 접근 시키지 마시요.	● 눈, 귀와 몸에 보호장구를 착용하십시요.
Arabic **تحذير**	● لا تلمس الاجزاء التي يسري فيها التيار الكهربائي أو الالكترود بجلد الجسم أو بالملابس المبللة بالماء. ● ضع عازلا على جسمك خلال العمل.	● ضع المواد القابلة للاشتعال في مكان بعيد.	● ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.

LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.

LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.

			
● Keep your head out of fumes. ● Use ventilation or exhaust to remove fumes from breathing zone.	● Turn power off before servicing.	● Do not operate with panel open or guards off.	**WARNING**
● Los humos fuera de la zona de respiración. ● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.	● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.	● No operar con panel abierto o guardas quitadas.	Spanish **AVISO DE PRECAUCION**
● Gardez la tête à l'écart des fumées. ● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.	● Débranchez le courant avant l'entretien.	● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.	French **ATTENTION**
● Vermeiden Sie das Einatmen von Schweibrauch! ● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!	● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)	● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!	German **WARNUNG**
● Mantenha seu rosto da fumaça. ● Use ventilação e exhaustão para remover fumo da zona respiratória.	● Não opere com as tampas removidas. ● Desligue a corrente antes de fazer serviço. ● Não toque as partes elétricas nuas.	● Mantenha-se afastado das partes moventes. ● Não opere com os paineis abertos ou guardas removidas.	Portuguese **ATENÇÃO**
● ヒュームから頭を離すようにして下さい。 ● 換気や排煙に十分留意して下さい。	● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切って下さい。	● パネルやカバーを取り外したままで機械操作をしないで下さい。	Japanese **注意事項**
●頭部遠離煙霧。 ●在呼吸區使用通風或排風器除煙。	●維修前切斷電源。	●儀表板打開或沒有安全罩時不準作業。	Chinese **警 告**
● 얼굴로부터 용접가스를 멀리하십시요. ● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시요.	● 보수전에 전원을 차단하십시요.	● 판넬이 열린 상태로 작동치 마십시요.	Korean **위 험**
● ابعد رأسك بعيداً عن الدخان. ● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.	● اقطع التيار الكهربائي قبل القيام بأية صيانة.	● لا تشغل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.	Arabic **تحذير**

LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

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